

DOE ORDER #

93 RF 14661



000013468

EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

December 2, 1993

93-RF-14661

R. J. Schassburger
Acting Director
Environmental Restoration Division
DOE, BFO

Attn: S. R. Surovchak

VERIFICATION OF SAMPLE TRACEABILITY TO INVESTIGATIVE DERIVED MATERIAL (IDM)
CONTAINERS (ARE DRUMS CLEAN OR NOT?) - NMH-619-93

1.0 INTRODUCTION

Environmental Restoration, using FO.23 as guidance, screened the Operable Unit 1 (OU1) and Operable Unit 2 (OU2) data using the 99/99 Upper Tolerance Levels (UTLs) for metals (values from the *1993 Background Geochemical Characterization Report*) and the result-qualifier field (all results not equal to "U") a screen for organics. Basically, any detect for any organic resulted in the drum being initially listed as "not clean". All data for such drums were compiled in Statistical Analysis Systems (SAS) files for subsequent analysis.

The files for metals and organics were evaluated separately. Discussion with J. R. Fitzsimmons (Waste Tech Support) indicated that only those components on the Resource Conservation and Recovery Act (RCRA) D-List and the RCRA F-List (40 CFR 216) must be evaluated in order to release the drums from RCRA interim storage. In accordance with this guidance, the final data sets for metals and Volatile Organic Analytes (VOAs) (METS02 and VOAS04, respectively) evaluate only the D-List and F-List components.

Hard-copy output of the final generation of the data sets is provided with this report. All drums containing one or more detects of a RCRA-regulated component are listed in the printouts that follow this brief text. More than 2,500 drums were evaluated.

2.0 EVALUATION OF METALS DATA FOR IDM DRUMS

The original file contained 12,003 observations that had been flagged as exceeding the 99/99 UTLs. Salient data from this initial data set - including all analytes and all drums - were printed out as a hard-copy record and reviewed. Observations for which results and validated results were missing were then dropped from the working data set. In the next step, essential rock-forming elements (Al, Ca, Fe, Mg, K, Si, Na) were dropped from the data set, cutting the number of observations to about 4,700. Finally, only regulated metals from the RCRA D-List (40 CFR 261.30) were printed out in a matrix showing drum number by regulated metal. The measured concentrations are not given on this printout, but

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

[illegible]

CLASSIFICATION:

UCNI		
UNCLASSIFIED		
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER
SIGNATURE

~~SECURITY CLASSIFICATION~~
~~REVIEW WAIVER PER~~
~~CLASSIFICATION OFFICE~~
DATE

IN REPLY TO RFP CC NO:

ACTION	ITEM	STATUS
1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24
25	26	27
28	29	30
31	32	33
34	35	36
37	38	39
40	41	42
43	44	45
46	47	48
49	50	51
52	53	54
55	56	57
58	59	60
61	62	63
64	65	66
67	68	69
70	71	72
73	74	75
76	77	78
79	80	81
82	83	84
85	86	87
88	89	90
91	92	93
94	95	96
97	98	99
100	101	102
103	104	105
106	107	108
109	110	111
112	113	114
115	116	117
118	119	120
121	122	123
124	125	126
127	128	129
130	131	132
133	134	135
136	137	138
139	140	141
142	143	144
145	146	147
148	149	150
151	152	153
154	155	156
157	158	159
160	161	162
163	164	165
166	167	168
169	170	171
172	173	174
175	176	177
178	179	180
181	182	183
184	185	186
187	188	189
190	191	192
193	194	195
196	197	198
199	200	201
202	203	204
205	206	207
208	209	210
211	212	213
214	215	216
217	218	219
220	221	222
223	224	225
226	227	228
229	230	231
232	233	234
235	236	237
238	239	240
241	242	243
244	245	246
247	248	249
250	251	252
253	254	255
256	257	258
259	260	261
262	263	264
265	266	267
268	269	270
271	272	273
274	275	276
277	278	279
280	281	282
283	284	285
286	287	288
289	290	291
292	293	294
295	296	297
298	299	300
301	302	303
304	305	306
307	308	309
310	311	312
313	314	315
316	317	318
319	320	321
322	323	324
325	326	327
328	329	330
331	332	333
334	335	336
337	338	339
340	341	342
343	344	345
346	347	348
349	350	351
352	353	354
355	356	357
358	359	360
361	362	363
364	365	366
367		

☐ PARTIAL/OPEN
☐ CLOSED

LTR APPROVALS:

~~QAVE~~ & TYPIST INITIALS

every drum that exceeded the 99/99 UTL for a RCRA-regulated metal is included on this list. Approximately 445 drums are included on this list, but it should be kept in mind that not all drums listed here may contain metal concentrations greater than the regulatory concentration. In addition to evaluating metals concentrations by a comparison with the 99/99 UTLs, a review of the crustal abundances of naturally occurring elements is recommended. A table presenting the average abundances of elements in the earth's crust (Krauskopf, 1979) is included to provide a "reality check" for reviewers of this report.

3.0 EVALUATION OF VOAS DATA FOR IDM DRUMS

The initial list (data set "VOAS01") of detected observations for organic analytes contained 24,694 records. Approximately 4,000 of these records were for "tentatively identified compounds" (TICs); these observations were eliminated from the next generation of the data set (VOAS02). The next step taken was to eliminate those observations for which the result-qualifier field was blank, but the result was less than the reported detection limit. Validated results and validated detection limits were used where available; otherwise, the result and detection limit reported by the lab were used (data set VOAS03). Finally, all results for which the given analyte was detected in the field blank or lab blank were dropped from the data set (VOAS04). Those analytes that were also found in the corresponding blank are flagged with a "B" in the qualifier field of the data set.

Using the above methodology, the fourth-generation data set (VOAS04) contains 11,654 observations. However, the number of flagged drums is not substantially reduced from that of the first-generation data set. The associated analytical data indicate that approximately 2,120 drums have one or more detected volatile organic compounds.

4.0 SUMMARY AND RECOMMENDATIONS

The work performed for this report meets the required action to identify those drums containing detectable concentrations of RCRA-regulated components. However, a more thorough review of the data (i.e., examining every record) will be required to adequately assess the necessity of keeping a given drum under RCRA-managed storage. For example, many drums on the list for detected VOAs have only one detect for a given drum, whereas other drums have 60 or more detects. Clearly, any one drum with numerous detected concentrations of RCRA-regulated components is a candidate for continued RCRA management. However, the decision of how to proceed in the case of drums with only one or two detects, is a policy decision that must be made prior to further data analysis.

It is the recommendation of EG&G that the Department of Energy request concurrence from the Colorado Department of Health on the above methodology and also for excluding drums with few detections of VOAs at low concentrations from those drums requiring RCRA-management. The total number of drums that must be RCRA-managed will be a function of the method of

R. J. Schassburger
December 2, 1993
93-RF-14661
Page 3

evaluation, as well as the concentrations of RCRA-regulated chemicals contained in the drummed Investigative Derived Materials.

Attached please find the RCRA D-Lists and the RCRA F-Lists. If you should have any questions, please contact Mary Siders at extension 6933.



N. M. Hutchins, Acting
Associate General Manager
Environmental Restoration Management
EG&G Rocky Flats, Inc.

MAS:lmw

Orig. and 1 cc - R. J. Schassburger

Attachment:
As Stated

cc:
A. H. Pauole - DOE, RFO
M. N. Silverman - " "

RCRA D-LIST

Analyte

Arsenic	5.0 MG/L
Barium	100.0 MG/L
Cadmium	1.0 MG/L
Chromium	5.0 MG/L
Lead	5.0 MG/L
Mercury	0.2 MG/L
Selenium	1.0 MG/L
Silver	5.0 MG/L
Benzene	0.5 MG/L
Carbon tetrachloride	0.5 MG/L
Clordane	0.03 MG/L
Chlorobenzene	100.0 MG/L
Chloroform	6.0 MG/L
o-Cresol	200.0 MG/L
m-Cresol	200.0 MG/L
p-Cresol	200.0 MG/L
Cresol	200.0 MG/L
2,4-D	10.0 MG/L
1,4-Dichlorobenzene	7.5 MG/L
1,2-Dichlorobenzene	0.5 MG/L
1,1-Dichlorobenzene	0.7 MG/L
2,4-Dinitrotoluene	0.13 MG/L
Endrin	0.02 MG/L
Heptachlor (and its epoxide)	0.008 MG/L
Hexachlorobenzene	0.13 MG/L
Hexachlorobutadiene	0.5 MG/L
Hexachloroethane	3.0 MG/L
Lindane	0.4 MG/L
Methoxychlor	10.0 MG/L
Methyl ethyl ketone (2-Butanone)	200.0 MG/L
Nitrobenzene	2.0 MG/L
Pentachlorophenol	100.0 MG/L
Pyridine	5.0 MG/L
Tetrachloroethylene	0.7 MG/L
Toxaphene	0.5 MG/L
Trichloroethylene	0.5 MG/L
2,4,5-Trichlorophenol	400.0 MG/L
2,4,6-Trichlorophenol	2.0 MG/L
2,4,5-TP (Silvex)	1.0 MG/L
Vinyl chloride	0.2 MG/L

Analyte

(F001)

Tetrachloroethylene
Trichloroethylene
Methylene chloride
1,1,1-Trichloroethane
Carbon Tetrachloride
Chlorinated fluorocarbons

(F002)

Chlorobenzene
1,1,2-Trichloro-1,2,2-trifluoroethane
Ortho-Dichlorobenzene
Trichlorofluoromethane
1,1,2-Trichloroethane

(F003)

Xylene
Acetone
Ethyl acetate
Ethyl benzene
Ethyl ether
Methyl isobutyl ketone
n-Butyl alcohol
Cyclohexanone
Methanol